**RESPONSE UNDER 37 C.F.R. 1.116 EXPEDITED
PROCEDURE EXAMINING GROUP 2683**

Attorney Docket No. 9342-139   <u>PATENT</u>

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Hansson et al.   Group Art Unit: 2683
Application Serial No.: 10/729,354   Confirmation No.: 8255
Filed: December 5, 2003   Examiner: Stephen M. D Agosta
For: **METHODS, SERVERS, MOBILE STATIONS AND COMPUTER
        PROGRAM PRODUCTS USING GPS REFERENCED TIME AND DELAY
        INFORMATION IN MESSAGES FOR GPS TIME ASSISTANCE**

August 23, 2006

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Commissioner for Patents
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TRANSMITTAL OF APPEAL BRIEF
(PATENT APPLICATION--37 C.F.R. § 41.37)

1.   Transmitted herewith is the APPEAL BRIEF for the above-identified application, pursuant to the Notice of Appeal filed on May 23, 2006.
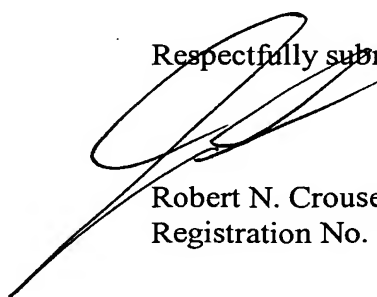
2.   This application is filed on behalf of
      ☐   a small entity.

3.   Pursuant to 37 C.F.R. § 41.20(b)(2), the fee for filing the Appeal Brief is:
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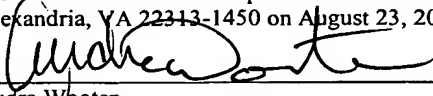Facsimile: (919) 854-1401

In re: Hansson et al.
Application Serial No.: 10/729,354
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Page 2 of 2

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Audra Wooten

Attorney Docket No. 9342-139   <u>PATENT</u>

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<u>APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. §1.192</u>

Sir:

This Appeal Brief is filed pursuant to the "Notice of Appeal to the Board of Patent Appeals and Interferences" mailed May 23, 2006, and received at the USPTO on May 25, 2006.

<u>Real Party In Interest</u>

The real party in interest is assignee Sony Ericsson Mobile Communications AB, a corporation organized under the laws of Sweden having a principal place of business at Lund, Sweden.

<u>Related Appeals and Interferences</u>

Appellants are aware of no appeals or interferences that would be affected by the present appeal.

<u>Status of Claims</u>

Appellants appeal the rejection of Claims 1-4, 21-23, 30, 38-40 and 42, which as of the filing date of this Brief remain under consideration. Claims 5-8, 24-29, 36-

37, and 43-45 stand objected to as being dependent upon one or more rejected base claims. Claims 9-13 and 31-34 have been allowed. The attached Appendix A presents the claims at issue as rejected in the Final Official Action of February 1, 2006 (the Final Official Action).

Status of Amendments

There have been no amendments filed subsequent to the Final Official Action. The attached Appendix A presents the claims as amended by the Amendment of January 9, 2006.

Summary of the Claimed Subject Matter

The present application includes Independent Claims 1, 21 and 39. The claims are method and system claims. Claim 1 is directed to methods of providing Global Positioning System (GPS) time assistance to a mobile station. Such methods may be provided by transmitting a message from a networked GPS time server to a mobile station, the message including GPS referenced time information indicating an elapsed GPS referenced time interval at the networked GPS time server between receiving a request for GPS time assistance at the networked GPS time server and transmitting the message to the mobile station. *See e.g. Specification page 11, lines 3-12 and Figure 3 (T2-T3 indicates GPS referenced time information indicating an elapsed GPS referenced time interval at the networked GPS time server).*

Independent Claim 21 is directed to systems for providing Global Positioning System (GPS) time assistance. Such systems can include a networked GPS time server circuit configured to transmit a message to a mobile station via a network, the message including GPS referenced time information indicating an elapsed GPS referenced time interval at the networked GPS time server circuit between receiving a request for GPS time assistance at the networked GPS time server circuit and transmitting the message to the mobile station. *See e.g. Specification page 11, lines 3-12 and page 14, lines 9-14.*

Independent claim 39 is directed to GPS-enabled systems. Such systems can include a processor circuit configured to determine current GPS referenced time at a mobile station derived from a single message from a networked GPS time server, the

single message including GPS referenced time information and delay information associated with propagation of the message to the mobile station wherein the GPS referenced time information comprises a first GPS referenced time at which the networked GPS time server received the request and a second GPS referenced time at which the networked GPS time server transmitted the message. *See e.g. Specification page 8, line 3 to page 9, line 7.*

Grounds of Rejection to Be Reviewed on Appeal

1. Claims 1-4, 21-22, 38-40 and 42 stand rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 6,429,811 to Zhao et al. ("Zhao") in view of U.S. Patent No. 5,938,721 to Dussell et al. ("Dussell") and further in view of U.S. Patent No. 6,324,170 to McClennon et al. ("McClennon").

2. Claims 23 and 30 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Zhao, Dussell and McClennon in further view of Postel, ICMP Protocol Specification, dated 1981 ("Postel").

Argument

I. Introduction to 35 U.S.C. §103 Analysis

Claims 1-4, 21-23, 30, 38-40, and 42 stand rejected under 35 U.S.C. § 103(a) over various combinations of references including Zhao, Dussell and McClennon. A determination under § 103 that an invention would have been obvious to someone of ordinary skill in the art is a conclusion of law based on fact. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1593, 1 U.S.P.Q.2d 1593 (Fed. Cir. 1987), *cert. denied*, 107 S.Ct. 2187. After the involved facts are determined, the decision maker must then make the legal determination of whether the claimed invention as a whole would have been obvious to a person having ordinary skill in the art at the time the invention was made. *See Panduit*, 810 F.2d at 1596. The United States Patent and Trademark Office (USPTO) has the initial burden under § 103 to establish a *prima facie* case of obviousness. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988).

To establish a *prima facie* case of obviousness, the prior art reference or references when combined must teach or suggest *all* the recitations of the claims, and there must be some suggestion or motivation, either in the references themselves or in

the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. *See* M.P.E.P. § 2143. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *See* M.P.E.P. § 2143.01(citing *In re Mills* , 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990)). As emphasized by the Court of Appeals for the Federal Circuit, to support combining references, evidence of a suggestion, teaching, or motivation to combine must be clear and particular, and this requirement for clear and particular evidence is not met by broad and conclusory statements about the teachings of references. *In re Dembiczak*, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999). In another decision, the Court of Appeals for the Federal Circuit has stated that, to support combining or modifying references, there must be particular evidence from the prior art as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed. *In re Kotzab*, 55 U.S.P.Q.2d 1313, 1317 (Fed. Cir. 2000).

Furthermore, as stated by the Federal Circuit with regard to the selection and combination of references:

> This factual question of motivation is material to patentability, and could not be resolved on subjective belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher." W.L. Gore v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983). Thus the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion....

In re Sang Su Lee, 277 F.3d 1338, 1343 (Fed. Cir. 2002).

The patentability of the pending claims is discussed further below.

II   Appellant's Response to the Advisory Action

The Advisory Action alleges, *inter alia*, that the Appellants provide virtually no description in the claims as to what the "networked GPS server" can or can't be. *See Advisory Action of April 28, 2006 (hereinafter "Advisory Action")*. The Appellants

respectfully submit that the claims (and specification) do in-fact clearly describe a

"networked GPS server." For example, Independent Claim 21 recites (emphasis added):

> **A networked server for providing Global Positioning**
> **System (GPS) time assistance** comprising:
> **a networked GPS time server** circuit configured to
> transmit a message to a mobile station via a network, the message
> including GPS referenced time information indicating an elapsed
> GPS referenced time interval at the networked GPS time server
> circuit between receiving a request for GPS time assistance at the
> networked GPS time server circuit and transmitting the message to
> the mobile station.

As shown above, Claim 21 recites a networked server for GPS time assistance.
*See also Specification page 5, lines 1-10; page 13, line 23 to page 14, line 14; FIG. 1,
block* 135. Further, Appellants are unsure how to address the assertion in the Advisory

Action regarding what the networked GPS time server "can't be," other than to point out

that there is no obligation to recite what a claimed element "can't be." Accordingly,

Appellants submit that the networked GPS server has been sufficiently described in the

specification and claims.

Regarding the remaining allegations in the Advisory Action, Appellants

respectfully submit that they are also in error for, at least, the reasons described in

Section III below.

III. Claims 1-4, 21-23, 30, 38-40, and 42 Are Patentable Over the Cited References

Claims 1-4, 21-22, 38-40, and 42 stand rejected under 35 U.S.C. § 103(a) over

Zhao and in further view of Dussell and McClennon. *Final Official Action, pp. 3-5.*

Claims 23 and 30 stand rejected under 35 U.S.C. § 103(a) over Zhao, Dussell, and

McClennon and further in view of Postel. *Final Official Action, p. 6.* As discussed

below in greater detail, Appellants' arguments focus on the rejections based on the

irrelevance of Zhao and its' improper combination with Dussell and McClennon.

Accordingly, Appellants' arguments herein address the rejections of all the

independent claims together to the extent that all of the rejections in the Official

Action rely on the combination of Zhao, Dussell, and McClennon.

In particular, the Final Official Action focus on aspects of the cited references that refer to the delay associated with the propagation of a message through a physical medium and alleges that such delay includes "an elapsed ... time interval at the networked GPS time server." However, as will be explained below in greater detail, a messages propagation delay is very different subject matter from "an elapsed...time interval at a networked GPS time server." Accordingly, Appellants respectfully maintain that the cited references, taken either singularly or in combination, do not disclose or suggest the recitations of the pending claims.

For example, Zhao, Dussell, and McClennon, either singularly or in combination, do not disclose or suggest at least:

> transmitting a message from a networked GPS time server to a mobile station, the message including GPS referenced time information indicating **an elapsed GPS referenced time interval at the networked GPS time server between receiving a request for GPS time assistance at the networked GPS time server and transmitting the message to the mobile station**.

Independent Claim 1 (emphasis added). Independent Claims 21 and 39 include similar recitations.

As reflected in the above-emphasized recitations of independent Claim 1, a message transmitted from the time server to the mobile station includes GPS referenced time that indicates an elapsed GPS referenced time interval **at the networked GPS time server** (that represents the time interval between receiving a request and transmitting the message). In contrast, the Final Official Action focus on aspects of the cited references that refer to the delay associated with message propagation. However, Appellants' claims recite very different subject matter and, instead, focus on transmitting a message that includes "an elapsed...time interval at a networked GPS time server." Accordingly, Appellants respectfully maintain that the cited references, taken either singularly or in combination, do not disclose or suggest the recitations of the pending claims.

Zhao discusses a system to provide assisted global positioning data to mobile terminals. One approach outlined by Zhao includes transmitting a compressed GPS assistance message (including a GPS satellite's coordinate position modified according to a satellite clock correction) rather than standard ephemeris and clock

correction data. *See, e.g. Abstract of Zhao.* Another approach outlined in Zhao includes transmitting the compressed GPS assistance message without redundant or predictable information to reduce the traffic associated with providing assisted GPS information. *See, e.g., Abstract of Zhao.* In other words, Zhao discusses sending a reduced amount of GPS information to the mobile. Accordingly, Zhao discusses sending compressed GPS data to the mobiles which is based on the original GPS information received from the satellites. Zhao, therefore, does not disclose or suggest "transmitting a message . . . indicating an elapsed GPS referenced time interval at the networked GPS time server between receiving requests for GPS time assistance at the network GPS time server and transmitting the message to the mobile station" as recited in independent Claims 1, 21, and 39.

One of the passages of Zhao relied on by the Official Action in support of the rejection reads:

> Choosing each individual base station of the system as the reference point R allows for control of the error induced in the range measurement. Compared with the distance from the location U of the mobile station 302 to the location of the satellite 320, the separation distance D between the base station 302 and the mobile station 304 is very short. Let us assume that the base station 302 is within 10 km of the mobile station 304 (valid most of the time in cellular systems). Also, it is known that the satellite clock correction cannot be any larger than 5 ms, since this is the maximum magnitude of the parameter. The maximum error in satellite predicted range is a function of this clock error and the separation distance D. Then, the calculated maximum error in the measured range based on the modified or projected satellite orbit, a 10 km separation distance D, and 5 ms of clock correction is approximately 1 meter, which is acceptably small given other system errors such as multipath, receiver noise, ionospheric delay, and other quantization effects.

Zhao, Column 8, lines 23-41.

In particular, the Official Action appears to interpret the above-cited passage of Zhao to mean that the system therein accounts for the distance between the mobile and the GPS receiver in stating "the separation distance D between the BTS and the mobile is very short" and "the calculated maximum erro[sic] in the measured range based on the . . .. 10 km separation distance D . . ."

Appellants respectfully point out that this passage relied on by the Official Action actually states that the distance D shown in Figure 3 is **negligible, and therefore need not be accounted for**. In particular, the passage of Zhao reads: "compared with the distance from the location U of the mobile station 304 to the location of the satellite 320, the separation distance D between the base station 302 and the mobile station 304 is very short" and goes on to state that "the calculated maximum error in the measured range based on the modified or projected satellite orbit, a 10 km separation distance D, and 5 ms of clock correction is approximately 1 meter, which is acceptably small given the other system errors such as multipath, receiver noise, ionospheric delay, and other quantization effects." *Zhao, Column 8, lines 23-41*. Therefore, the passage relied on by the Official Action actually means that the distance D shown in Figure 3 between the mobile station and the base station can be ignored, and therefore the propagation time of a message between the two need not be accounted for. Therefore, Appellants respectfully submit that the passage relied on by the Official Action does not disclose or suggest "transmitting a message that indicates an elapsed GPS referenced time interval at the network GPS time server between receiving a request for GPS time assistance at the network GPS time server and transmitting the message to the mobile station" as recited in Claims 1, 21, and 39.

Furthermore, even assuming for the sake of argument that the cited passage of Zhao did discuss accounting for the transmission time, the transmission time associated with the distance D is not incurred at the network GPS time server, but rather is incurred during the travel time of the message from the base station to the mobile station. Therefore, even if the cited passage of Zhao were considered for the sake of argument to discuss accounting for propagation time, the propagation time discussed would not disclose or suggest the type of delay recited in Appellants' independent Claims 1, 21, and 39. Accordingly, Zhao does not disclose or suggest all of the recitations of the independent claims for at least the reasons described above.

Appellants further submit that Dussell also does not disclose or suggest the recitations shown to be missing from Zhao. In particular, Dussell discusses relating tasks to be accomplished to geographic location coordinates so that the user may be alerted to complete the task based on the detected location of the system. *Abstract of Dussell.* Dussell does not disclose or suggest, at least, "transmitting a message from a

networked GPS time server . . . including GPS referenced time information indicating an elapsed GPS referenced time interval at the networked GPS time server between receiving a request for GPS time assistance at the networked GPS time server and transmitting the message to the mobile station" as recited in independent Claims 1, 21, and 39. In particular, Dussell shows that the "message" cited by the Official Action actually includes geographic location coordinates provided from the location determination unit 30 to the requesting device. However, the geographic location coordinates provided by the location determination unit 30 **do not include GPS time information**. To the contrary, Dussell reads:

> At some point, location determination unit 30 will receive and process GPS signals in the manner described above and will provide geographic location coordinates to mobile computer system 20 via interface 38. These geographic location coordinates will correspond to the geographic location of antenna 32, however, it is assumed that mobile computer system 20 is in close enough proximity to antenna 32 such that the location of antenna 32 is substantially the same as the location of mobile computer system 20. This condition will be satisfied, for example, if mobile computer system 20 is transported within the same vehicle as that on which antenna 32 is located. Antenna 32 may be a patch antenna or other antenna suitable for mounting on a vehicle and capable of receiving GPS signals transmitted by GPS satellites or pseudolites.

Dussell, Column 8, lines 12-26.

The above-cited passage of Dussell indicates that the information provided by the location determination unit 30 includes geographic location coordinates, not **time** information because the mobile computer system 20 does not require GPS time information as the geographic location coordinates already indicate the location of the mobile computer system 20. Therefore, Dussell also does not disclose or suggest, at least, "transmitting a message from a networked GPS time server . . . including GPS referenced time information indicating an elapsed GPS referenced time interval at the networked GPS time server between receiving a request for GPS time assistance at the networked GPS time server and transmitting the message to the mobile station," as recited in independent Claims 1, 21, and 39.

Appellants further submit that McClennon also does not disclose or suggest the recitations shown above to be missing from Dussell and Zhao. In particular,

McClennon relates to an echo cancellation system that measures round trip delay in packet switched networks used to conduct VoIP telecommunications. Accordingly, McClennon does not include any disclosure or suggestion of a networked GPS time server, or messages transmitted from the mobile to the networked GPS time server and a message transmitted from the networked GPS time server including "GPS referenced time information indicating an elapsed GPS referenced time interval at the networked GPS time server between receiving a request for GPS time assistance at the networked GPS time server and transmitting the message to the mobile station," as recited independent Claims 1, 21, and 39.

Furthermore, even assuming for the sake of argument that McClennon could somehow be related to networked GPS time servers, the estimation discussed in McClennon is for a **total round trip delay**, whereas independent Claims 1, 21, and 39 recite a message including GPS referenced time information indicating **an elapsed GPS referenced time interval at the network GPS time server between receiving a request . . . and transmitting the message**. Therefore, even if McClennon were considered related to networked GPS time servers, the estimations made therein do not include the indication of time intervals as recited in Appellants' independent claims. Accordingly, McClennon also does not disclose or suggest all the recitations of the independent claims for at least the reasons discussed above.

In addition to the reasons described above, Appellants also respectfully submit there is no clear and particular evidence of a motivation or suggestion to combine these references as required under Section 103. To establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings, and there must be a reasonable expectation of success of the combination. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in Appellant's disclosure. See MPEP § 2143. As stated by the Court of Appeals for the Federal Circuit, to support combining references in a § 103 rejection, evidence of a suggestion, teaching, or motivation to combine must be clear and particular, and this requirement is not met by merely offering broad,

conclusory statements about teachings of references. *In re Dembiczak,* 50 USPQ2.d 1614, 1617 (Fed. Cir. 1999).

As discussed above, Zhao relates to transmitting compressed GPS data to the mobile to reduce the amount of traffic data generated by the system. In contrast, Dussell relates to associating tasks with geographic location coordinates provided by a location determination unit. Accordingly, Dussell does not relate to **how** location information is determined, but rather focuses on how location information **is to be used**. In further contrast, McClennon does not even relate to GPS systems, but rather relates to echo cancellation and audio systems. Appellants respectfully submit there is no clear and particular evidence of a suggestion or motivation as to why one of ordinary skill in the art would have combined these references given their very different natures and the different problems these references solve.

Furthermore, the evidence offered by the Official Action is not clear and particular and, in fact, appears to be the type of conclusory reasoning generally prohibited by the case law discussed above. The Official Action offers the following rationale as the motivation to combine the cited references:

> It would have been obvious to one skilled in the art at the time of the invention to modify Zhao, such that indicating an elapsed GPS referenced time interval at the networked GPS time server between receiving a request for GPS time assistance at the networked GPS time sever, to provide means for the mobile to subtract out the elapsed time for roundtrip transmission and reception of the request and subsequent data.
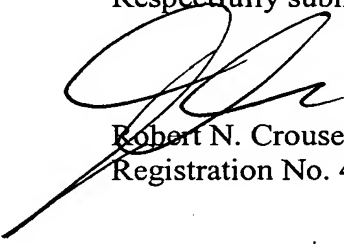
Official Action, page 3.

Appellants respectfully submit that the above-cited rationale relied upon by the Official Action in support of the rejection under Section 103 is the type of conclusory reasoning that is prohibited by the cited case law. In particular, the rationale offered by the Official Action appears to only state a conclusion that it would have been obvious to modify Zhao to provide the recitations that are admitted to be missing from Zhao. The offered rationale provides no clear or particular evidence as to why one of ordinary skill in the art would have combined these particular references. Appellants respectfully submit that there is no clear and particular evidence of a motivation or suggestion to combine Zhao, Dussell, and McClennon as required under Section 103.

Accordingly, independent Claims 1, 21, and 39 are patentable over Zhao, Dussell, and McClennon for at least the reasons discussed above. Furthermore, the remaining claims which depend from the independent claims are also patentable for at least the same reasons.

III. **Conclusion**

In light of the above discussion, Appellant submits that the pending claims are patentable over the cited references and, therefore, requests reversal of the rejections of Claims 1-4, 21-23, 30, 38-40 and 42, and of the objections to Claims 5-8, 24-29, 36-37, and 43-45.
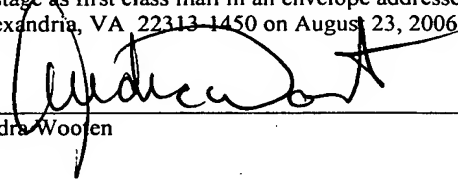
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Audra Woofen

APPENDIX A
Pending Claims USSN 10/729,354
Filed December 5, 2003

1.   (Original) A method of providing Global Positioning System (GPS) time assistance to a mobile station comprising:

transmitting a message from a networked GPS time server to a mobile station, the message including GPS referenced time information indicating an elapsed GPS referenced time interval at the networked GPS time server between receiving a request for GPS time assistance at the networked GPS time server and transmitting the message to the mobile station.

2.   (Original) A method according to Claim 1 wherein the message comprises an Internet Control Message Protocol message.

3.   (Original) A method according to Claim 1 wherein the GPS referenced time information comprises a first GPS referenced time at which the networked GPS time server received the request and a second GPS referenced time at which the networked GPS time server transmitted the message.

4.   (Original) A method according to Claim 3 wherein the GPS referenced time information further comprises:

a mobile station referenced request time at which the mobile station transmitted the request to the networked GPS time server.

5.   (Original) A method according to Claim 4 wherein the message comprises a single ICMP message including the first and second GPS referenced times and the mobile station request time.

6.   (Original) A method according to Claim 4 further comprising:

receiving the message at the mobile station at a mobile station referenced reception time at which the mobile station received the message from the networked GPS time server;

determining a delay associated with propagation of the message from the networked GPS time server to the mobile station based on the mobile station referenced reception time and the mobile station referenced request time; and

determining a mobile station GPS time based on the second GPS referenced time at which the networked GPS time server transmitted the message and the delay.

7.   (Original) A method according to Claim 6 wherein determining the delay further comprises:

determining the delay based on the mobile station referenced reception time, the mobile station referenced request time, and the first and second GPS referenced times.

8.   (Original) A method according to Claim 1 wherein transmitting is preceded by:

accessing GPS referenced time from the networked GPS time server responsive to the request to provide a first GPS referenced time at the networked GPS time server when the message is received; and

accessing GPS referenced time from the networked GPS time server responsive to the request to provide a second GPS referenced time at the networked GPS time server when the message is transmitted.

9.   (Original) A method of providing Global Positioning System (GPS) time assistance to a mobile station comprising:

transmitting a request for GPS time assistance information from a mobile station to a networked GPS time server at a first mobile station referenced time;

receiving the request for GPS time assistance information at the networked GPS time server at a first GPS referenced time;

transmitting a single ICMP message from the networked GPS time server to the mobile station at a second GPS referenced time, the single ICMP message including at least the first and second GPS referenced times;

receiving the single ICMP message at the mobile station at a second mobile station referenced time; and

determining a current GPS referenced time at the mobile station based on the first and second GPS referenced times and the first and second mobile station referenced times.

10.   (Original) A method according to Claim 9 wherein transmitting the single ICMP message further comprises:

transmitting the single ICMP message including the first mobile station referenced time.

11.   (Original) A method according to Claim 9 wherein the first and second GPS referenced times indicate an elapsed GPS referenced time interval at the networked GPS time server between receiving the request for GPS time assistance at the networked GPS time server and transmitting the message to the mobile station.

12.   (Original) A method according to Claim 9 wherein the determining further comprising:

determining a delay associated with propagation of the message from the networked GPS time server to the mobile station based on a difference between the first and second mobile station referenced times; and

determining a current GPS referenced time based on the second GPS referenced time at which the networked GPS time server transmitted the message and the delay associated with propagation of the message.

13.   (Original) A computer-readable medium having computer-executable instructions for performing the steps recited in Claim 9.

Claims 14-20 (Cancelled)

21.   (Original) A networked server for providing Global Positioning System (GPS) time assistance comprising:

a networked GPS time server circuit configured to transmit a message to a mobile station via a network, the message including GPS referenced time information

indicating an elapsed GPS referenced time interval at the networked GPS time server circuit between receiving a request for GPS time assistance at the networked GPS time server circuit and transmitting the message to the mobile station.

22. (Original) A networked server according to Claim 21 wherein the message comprises an Internet Control Message Protocol (ICMP) message.

23. (Original) A networked server according to Claim 21 wherein the request for GPS time assistance comprises an ICMP time request message and the message comprises an ICMP time response message.

24. (Original) A networked server according to Claim 22 wherein GPS referenced time information comprises GPS Time-Of-Week (TOW) information and GPS sub-frame information indicating GPS time having a greater accuracy than the GPS TOW information alone.

25. (Original) A networked server according to Claim 24 wherein the GPS referenced time information further comprises:

GPS data bit count information indicating a bit position within the GPS sub-frame information indicating GPS time having a greater accuracy than the GPS TOW information and the GPS sub-frame information alone.

26. (Original) A networked server according to Claim 25 wherein the GPS referenced time information further comprises:

coarse acquisition code information indicating a coarse acquisition code repetition count within the GPS data bit count information indicating GPS time having a greater accuracy than the GPS TOW information, the GPS sub-frame information, and the GPS data bit count information alone.

27. (Original) A networked server according to Claim 22 wherein the GPS referenced time information comprises:

GPS Time-Of-Week (TOW) information; and

four bits of GPS sub-frame information indicating a word position within a frame of the GPS TOW information;

five bits of GPS data bit count information indicating a bit position within the GPS sub-frame information; and

coarse acquisition code information indicating a coarse acquisition code repetition count within the GPS data bit count information.

28.   (Original) A networked server according to Claim 27 wherein the GPS TOW information is separated into at least two ICMP messages, or excludes at least some of the most significant bits of the GPS TOW information.

29.   (Original) A networked server according to Claim 27 wherein the coarse acquisition code information comprises between one and five bits inclusive.

30.   (Original) A networked server according to Claim 22 wherein the ICMP message comprises a ping message.

31.   (Previously presented) A networked server for providing Global Positioning System (GPS) time assistance comprising:

a GPS time source configured to provide GPS referenced time information comprising GPS Time-Of-Week (TOW) information and GPS sub-frame information indicating GPS time having a greater accuracy than the GPS TOW information alone; and

an IP stack including an ICMP compliant protocol layer configured to request GPS referenced time information from the GPS time source responsive to ICMP time stamp request messages and configured to transmit ICMP time reply messages including the GPS referenced time information.

32.   (Original) A networked server according to Claim 31 wherein the GPS referenced time information comprises:

a first GPS referenced time associated with when the ICMP time request message was received by the networked server; and

a second GPS referenced time associated with when the ICMP time replay message is transmitted by the networked server.

33.   (Original) A networked server according to Claim 31 further comprising:

an application layer of the IP stack; and

an application configured to receive the GPS time assistance requests from mobile stations and configured to provide GPS time assistance information in response thereto, wherein the application is configured to access the ICMP compliant protocol layer through the application layer of the IP stack.

34.   (Original) A networked server according to Claim 31 further comprising:

a GPS time source switch coupled between the IP stack and the GPS time source, wherein the GPS time source switch is configured to direct requests for GPS referenced time information to the GPS time source and direct GPS referenced time information from the GPS time source to the IP stack and configured to direct requests for server time information to a server time source and direct server referenced time information from the server time source to the IP stack.

Claim 35 (Canceled).

36.   (Previously presented) A networked server according to Claim 31 wherein the GPS referenced time information further comprises:

GPS data bit count information indicating a bit position within the GPS sub-frame information indicating GPS time having a greater accuracy than the GPS TOW information and the GPS sub-frame information alone.

37.   (Original) A networked server according to Claim 36 wherein the GPS referenced time information further comprises:

coarse acquisition code information indicating a coarse acquisition code repetition count within the GPS data bit count information indicating GPS time

having a greater accuracy than the GPS TOW information, the GPS sub-frame information, and the GPS data bit count information alone.

38.   (Original) A computer-readable medium having computer-executable instructions for implementing the networked server recited in Claim 31.

39.   (Previously presented) A GPS enabled mobile station comprising:
       a processor circuit configured to determine current GPS referenced time at a mobile station derived from a single message from a networked GPS time server, the single message including GPS referenced time information and delay information associated with propagation of the message to the mobile station wherein the GPS referenced time information comprises a first GPS referenced time at which the networked GPS time server received the request and a second GPS referenced time at which the networked GPS time server transmitted the message.

40.   (Original) A GPS enabled mobile station according to Claim 39 wherein the message comprises an Internet Control Message Protocol message.

Claim 41 (Canceled).

42.   (Original) A computer-readable medium having computer-executable instructions for performing the steps recited in Claim 39.

43.   (Original) A GPS enabled mobile station according to Claim 39 wherein the GPS referenced time information comprises GPS Time-Of-Week (TOW) information and GPS sub-frame information indicating GPS time having a greater accuracy than the GPS TOW information alone.

44.   (Original) A GPS enabled mobile station according to Claim 39 wherein the GPS referenced time information further comprises:

GPS data bit count information indicating a bit position within the GPS sub-frame information indicating GPS time having a greater accuracy than the GPS TOW information and the GPS sub-frame information alone.

45.   (Original) A GPS enabled mobile station according to Claim 44 wherein the GPS referenced time information further comprises:
coarse acquisition code information indicating a coarse acquisition code repetition count within the GPS data bit count information indicating GPS time having a greater accuracy than the GPS TOW information, the GPS sub-frame information, and the GPS data bit count information alone.